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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AUG 23 1985

MEMORANDUM

SUBJECT: Applicability of the "Mixture" and Derived From"
Rules to Petroleum Refinery Wastewater Systems

FROM: John H. Skinner, Director

TO: Director, Waste Management Division
Regions I-X

Over the past year, we have received several requests from Regions VI and VIII for interpretations relating to the conditions under which sludges generated in refinery surface impoundments are hazardous. Many of those questions should have been answered by our December 7, 1984 memorandum to Robert Duprey, a copy of which is attached. The Administrator has recently received a petition from the Texas Mid-Continent Oil and Gas Association (TMOGA) that raises the question of whether the "mixture" and "derived from" rules provide a basis for the regulation of these units. We hope that this letter provides sufficient guidance on this issue to insure the proper application of the "mixture" and "derived from" rules to refinery wastewater systems.

Five waste streams generated by petroleum refineries are currently listed in 40 CFR §261.32. Based on a review of the American Petroleum Institute's 1982 survey of refineries, we expect that as many as 40% of all refineries are performing some treatment of these wastes (primarily API Separator Sludge, DAF Float, or Slop Oil Emulsion Solids). Generally, the treatment involves some form of dewatering by sedimentation, filtration, or centrifugation. A literal reading of 40 CFR §261.3(c)(2)(i), the "derived from" rule, would suggest that the resultant liquid stream is a hazardous waste and remains one until delisted. Since refiners generally return the aqueous stream to the refinery wastewater system, the mixture rule (40 CFR §261.3(a)(2)(iv)) would then define the combined water stream and all subsequent residuals as hazardous wastes. (Note, however, that the effluent at the point of discharge from the wastewater treatment system would not be a solid waste by virtue of the industrial wastewater discharge exclusion, 40 CFR §261.4(a)(2).)

After careful consideration of the characteristics of the currently listed refinery wastes, the waste management practices, and the disposition of the recycle streams, we have concluded that the "derived from" rule is not uniformly applicable to the aqueous stream generated in a sludge dewatering process. Our interpretation is based on the presumption that properly conducted dewatering of a wastewater treatment residual will insure that none of the listed waste is returned to the system, while simultaneously reducing the total amount of waste generated. It is our opinion that dewatering of the currently listed refinery wastes can be conducted in a manner that insures the return of only the non-listed wastewater which came into contact with, but was not mixed with, the listed waste. This interpretation leaves a burden of proof on the facility to establish that they are "properly conducting" dewatering.

We believe that the demonstration of properly conducted dewatering can be made by the plant by conducting waste analysis. Specifically, if the refinery can show, to your satisfaction, that the return water stream is chemically equivalent to the non-listed wastewater influent to the wastewater treatment device that originally generated the listed waste, then the return water stream is not "derived from" the hazardous waste. It should be noted that this demonstration cannot be made if the influent to the waste treatment unit itself contained a listed hazardous waste. In this case, all waste derived from its treatment would be hazardous since the original wastewater was hazardous.

As an example, consider a refinery that generates an API separator sludge; suppose that the refinery pumps this listed hazardous wastes to an impoundment for sludge dewatering, after which the sludge is sent to a landfarm and the water supernatant is sent to the influent to the API Separator. If the returned water stream is similar in composition of Appendix VIII hazardous constituents and total suspended solids (TSS) to the influent wastewater to the API Separator, then only the non-listed wastewater is being returned and the return wastewater is not a hazardous waste. On the other hand, if the level of some Appendix VIII constituent or the TSS is significantly higher than the level in the API separator influent, then hazardous waste is being returned to the wastewater treatment system and the mixture rule is triggered for the entire wastewater system.

What constitutes a significantly higher constituent level is obviously a case-by-case determination that is functionally dependent upon the amount of sampling data available. We will be glad to provide an opinion for any specific case if you forward the required information on the waste streams. It

should be noted, in passing, that the dewatering impoundment is a regulated unit regardless of the regulatory status of the water stream since this unit is being used to treat and store a hazardous waste.

Application of the above rules has major implications for refineries that are returning hazardous waste to their wastewater treatment system. At these facilities, all downstream units are hazardous waste management units. Beyond that, all residuals generated downstream are hazardous wastes, unless an upstream or influent wastewater mixture, or the residual itself, has been delisted by the Agency. We are concerned that the net affect of these rules, when coupled with the closeness of the Part B submission deadline, may cause major problems for refiners who were practicing the desirable activity of waste minimization, but were not operating in a systematic fashion. We cannot, however, justify a blanket exemption from the mixture rule for all of the recycled liquid streams.

Our hesitation to grant a blanket exemption is based on the fact that the limited data which we have available at this time (data supplied by the American Petroleum Institute) suggest that the liquid streams can contain appreciable amounts of Appendix VIII hazardous constituents from the hazardous waste. Calculations performed by my staff further suggest that major portions of the constituents found in downstream wastewaters can result from the introduction of the recycle stream.

Nevertheless, we do believe there are cases where a rigid application of the two rules results in a less desirable outcome. Unfortunately, our procedural options are rather limited. The rules have been final for several years and revision at this point would require issuing a proposal, along with providing an opportunity for public comment. We could not justify starting such an effort until we receive meaningful data from TMOGA or other petitioners. In the interim, the sole available mechanism for regulatory relief is through the delisting process.

Fortunately, some refineries have correctly interpreted the subject rules and are working to submit their Part B's in November, as required. We believe, however, that a much larger contingent of refineries may not be exerting any effort, due to a misinterpretation of the rules or the hope that EPA will ignore the rules. Since those facilities would lose their interim status for the affected units, it is imperative that your staff notify them of their responsibilities at the earliest possible date. Facilities which fall the test on the return water stream will need to submit a delisting

petition if they hope to receive an exclusion for their recycled liquid streams.

Since there is potential for significant economic impact, we will perform an expedited review of all complete petitions that are received. The 1984 amendments, however, do not leave us the option to grant a temporary exclusion under 40 CFR §261.22(m). See also 50 FR 28737; July 15, 1985. Specific information that is required of a delisting petitioner is described in the guidance manual for delisting petitions; petitioners should take extra care to insure that Appendix VIII characterizations are provided for all wastes that are being treated, the recycled liquid streams, the wastewaters receiving the recycled streams, and the non-recycled residuals of treatment. It is also important that all analysis be representative of the long term variations in the quality of the recycled stream and factors that contribute to that variation. Complete volumetric and phase characterizations for all streams and data defining their variability are also essential. Due to the tight time constraints involved, petitioners may want to contact Jim Poppiti of my staff, at (202) 475-8551, before making their submissions.

In the way of guidance to your staffs, it is also essential that they understand and consistently apply the definitions of the wastes to insure that facilities are not erroneously categorized. Clearly, recycled streams are not regulated if the hazardous waste has not been generated. It may be useful to clarify the point of waste generation and associated applicability of the rules. They are as follows:

K048 (DAP Float) - Generated at the moment they are formed in the top of the unit. Any liquid stream deriving from the concentration of K048 could be derived from a hazardous waste.

K049 (Slop Oil Emulsion Solids) - This waste, sometimes referred to as middle layer emulsion, is generated at the first instance where the emulsion layer is allowed to form. The layer will form in the first vessel to which slop oils are pumped from the wastewater system. with one exception, the wastewater from this first tank need not be evaluated for the "derived from" test. The case where it would require testing is where a hazardous waste, such as DAF Float, was introduced into the emulsion breaking tank. Water phase derived from any subsequent emulsion breaking or emulsion storage is subject to the "derived from" test.

K050 (Bundle Cleaning Sludge) - Mixtures containing this hazardous waste which are part of the refinery wastewater system are exempted from the mixture rule (40 CFR §261.3(a))

(iv)(c)).

K051 (API Separator Sludge) - Generated at the moment of deposition in the API separator. Note that deposition is defined as a condition where there has been at least a temporary cessation of lateral particle movement. Liquids derived from the management of API Separator Sludge after its removal from the separator (e.g., centrifuging) must be evaluated to establish whether, or not, they are "derived from" the hazardous waste.

K052 (Leaded Tank Bottoms) - Generated at the moment of deposition in the gasoline storage tank. Section 261.4(c) excludes the tank from regulatory requirements. Any portion returned to the wastewater systems must be tested under the "derived from" rule.

This memorandum should clarify (when applied in concert with our previous guidance on scouring, slop oil systems, and waste reactivity) the regulatory status of most refinery wastewater impoundments. Do not hesitate to contact Ben Smith of my staff (FTS: 382-4791), if you have any additional questions on this or other refinery related matters. We will keep you apprised of our progress with the TMOGA petition and our waste listing efforts.

Attachment

cc: John Quarles

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